

# ELECTRONICS AND SOFTWARE BASED SYSTEMS AUSTRIA

6 March 2024, Chips JU 2024 Information Day,

Cristina De Luca (Silicon Austria Labs)

Francesca Flamigni (TTTECH Computertechnik AG)

## Activities ESBS-Austria 2024 (planned)

### Events

- 13 May Austrian IPCEI Day, organized in cooperation w/Infineon, Vienna
- 14 May ESBS-Austria spring conference „Chips JU“ and General Assembly, Vienna
- 7 Nov Fall event ESBS-Austria, Linz

### Network/Strategy

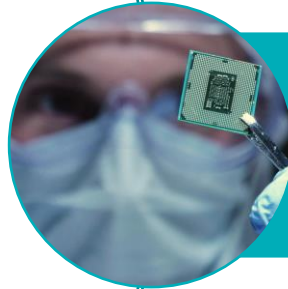
- **European Competence Centers:** process ongoing, no detailed information yet; cooperation w/Italy welcome (8 Mio/4yrs; deadline call: Apr 11, 2024)
- **Pilot Lines:** Cooperation & coordination in Austria by Silicon Austria Labs (SAL)
- **Austrian Chips Forum:** close cooperation with public authorities on national level (BMK – federal ministry of climate action)

### (External) visibility

- 25 Jun IMAGINE24 ‚Re-inventing digital technologies‘, Vienna, target group researchers and students
- 2024 Call & awarding of 3 ebs-related Bachelor/Master Thesis with esbs focus



Silicon Austria Labs (SAL) short  
overview



PILOT LINEs: contribution in  
Pilotline 2 & 4



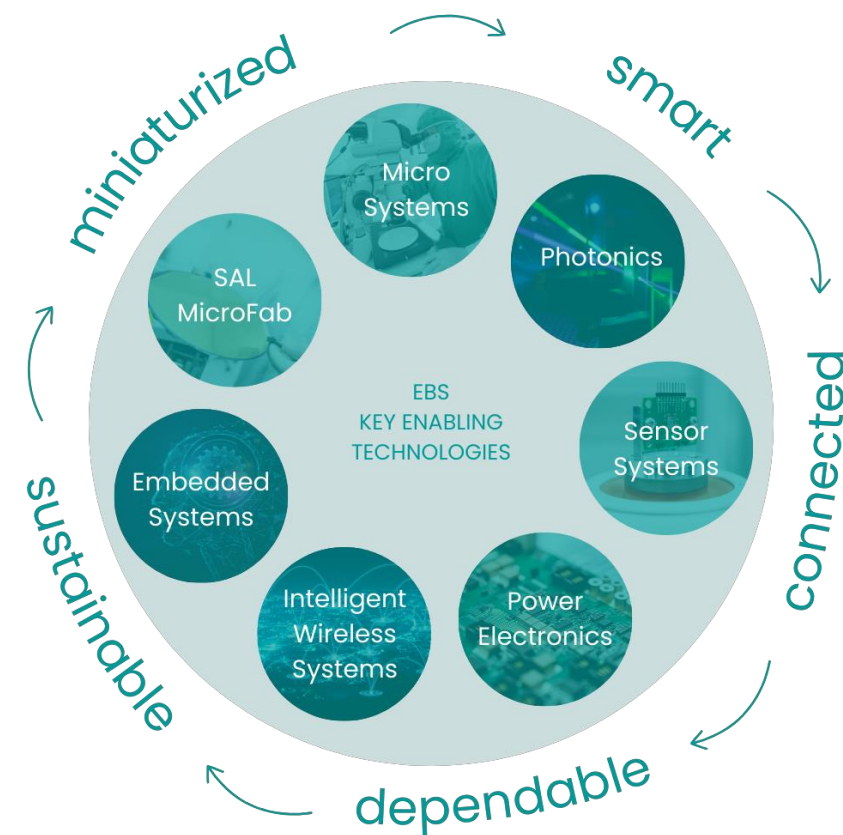
AT- C3 COMPETENCE CENTER AUSTRIA

# SILICON AUSTRIA LABS (SAL)

What drives us?

As a **industrial research center and pioneer in EBS**, we offer the industry, access to top-class R&D infrastructures & research services to give them the decisive competitive advantage on both domestic and on international soil.

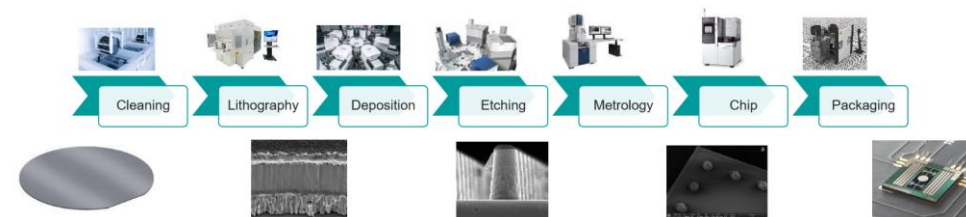
- ≡ We provide **EBS Key Enabling Technologies** for Smart, Connected, Dependable, Sustainable and Miniaturized Solutions
- ≡ We offer cost-effective research through **More-than-Moore, Photonics, 6G, High Power Density Converter** and **Dependable EBS**



## SAL MICROFAB

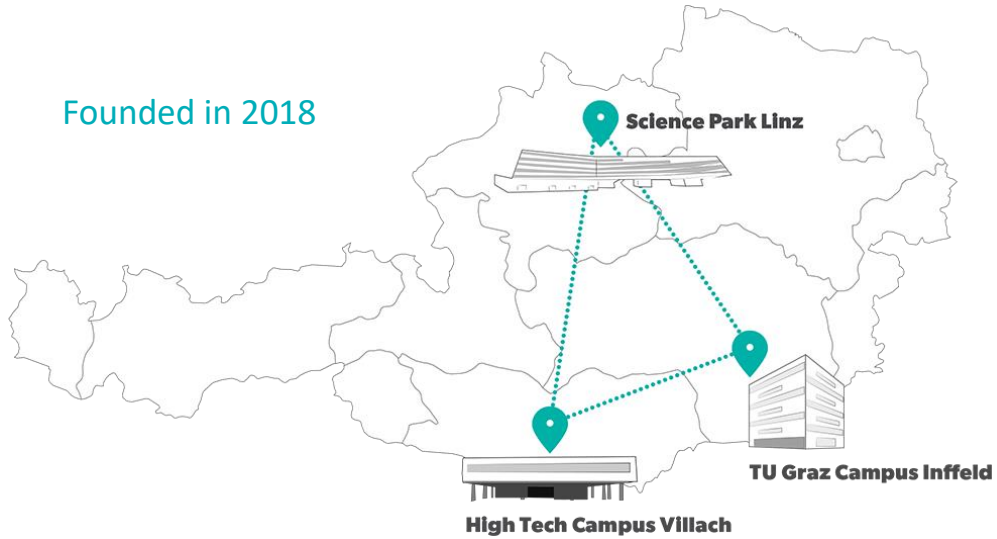
### Focus:

- ISO 4 / 1100 m<sup>2</sup> cleanroom
- Serving the full value chain of EBS
- Research – Prototyping – Small Series



# KEY FACTS

Founded in 2018



3

## LOCATIONS

- Graz (HQ)
- Villach
- Linz



> 300

## EXPERTS

- Experienced team
- 40 nations
- Multidisciplinary



5

## SHAREHOLDER

- 50,1 % Republic of Austria (BMK)
- 24,95 % FEEI
- 10 % Styria (SFG)
- 10 % State of Carinthia
- 4,95 % Upper Austria (UAR)



20

## RESEARCH UNITS

in 5 DIVISIONS:

- Sensor Systems
- Microsystems
- Power Electronics
- Embedded Systems
- Intelligent Wireless Systems



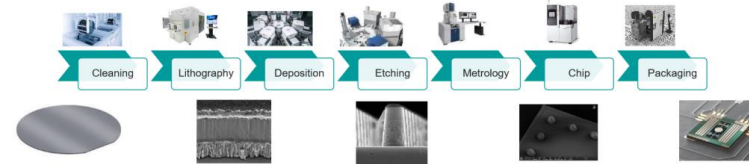
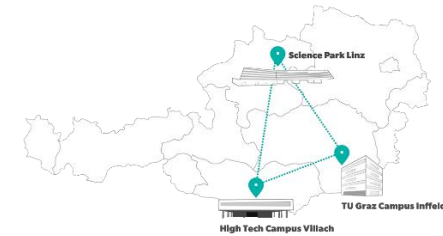
> 90

## PARTNER NETWORK

- From Industry & Research

**SAL MICROFAB**

**Focus:**  
 - ISO 4 / 1100 m<sup>2</sup> cleanroom  
 - Serving the full value chain of EBS  
 - Research – Prototyping – Small Series



**SAL operates two Cleanrooms** at its Villach site (SAL MicroFab):

- A 400 m<sup>2</sup> ISO5/6 cleanroom for single wafer processing up to 200mm – established 2016 with total investment > 10 mio€.
- A 1100 m<sup>2</sup> ISO4/5 cleanroom for semi-automated 200mm wafer processing and small series production – established 2023 with total investment 18 mio€.

Further, SAL operates additional ~1000 m<sup>2</sup> facilities for the characterization of RF, piezoelectric, acoustic, photonic, and magnetic properties of MEMS devices.

Focus of SAL's activities within its cleanroom facilities is the development of ultra-high performance thin-film technology and related microfabrication for sensor, actuator, photonic, RF MEMS, and power electronic devices throughout the entire industrial value chain. SAL functions as an applied research centre, offering access to a cutting-edge cleanroom infrastructure for advanced thin-film technology, facilitating industrial deployment and related microfabrication processes for "More than Moore" applications. The research and technology staff at SAL has more than 25 years' experience in developing electronic based systems and works according to ISO 9001:2015 certification.



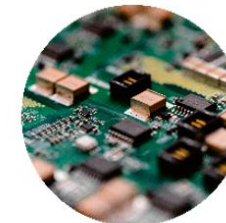
**SENSOR SYSTEMS**



**EMBEDDED SYSTEMS**



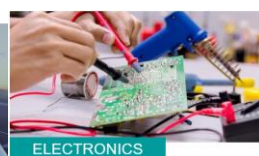
**INTELLIGENT WIRELESS SYSTEMS**



**POWER ELECTRONICS**



**MICRO-SYSTEMS**





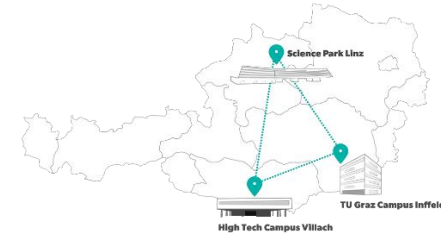
# PILOT LINES



Submitted CHIPS JU:  
29th February 2024

Selection:  
Q2

Start:  
Q3



Chips 2023-CPL-2 Advanced Fully Depleted Silicon On Insulator technologies targeting 7nm . MAX. EU 420 (M€)

**FAMES – FD-SOI PL FOR APPLICATIONS WITH EMBEDDED NON-VOLATILE MEMORIES, RF, 3D INTEGRATION AND PMIC, TO ENSURE EUROPEAN SOVEREIGNTY**

Coordinator: CEA-Leti

11 Partners, from FR, DE, BE, FI, IE, AT, SP

4 Hosting Sites: CEA-Leti, Tyndall, VTT and SAL

FAMES Pilot Line will develop advanced technologies offering 2 generations of FD-SOI at 10nm and 7nm.

Among others SAL SAL will take on the difficult task of integrating magnetic layers into FD-SOI technology. Activities include the design and microfabrication of RF MEMS including all process steps from thin film process developments, patterning, passivation, as well as 3D integration of the RF devices onto 300 mm FD-SOI reconstructed wafers.

Chips 2023-CPL-4 Advanced semiconductor devices based on Wide Bandgap materials – MAX: EU 180 (M€)

## WBGPILOTLINE

Coordinator: Consiglio Nazionale delle Ricerche (CNR)

14 Partners, from IT, SE, PL, FI, AT, FR, DE

WBG Pilot Line aims to realise an integrated PL focused on the developments of the wide-bandgap (WBG) semiconductor technologies for power and radio frequency (RF) electronics.

SAL MicroFab will provide a unique technological portfolio to the European ecosystem by focusing on development and integration of (ultra-)wide band gap thin films, and the related metallization/passivation/microfabrication steps necessary to fabricate RF power components.

### Pilot Line 02

FD-SOI technology at  
10nm and beyond



- ≡ More-than-Moore markets
- ≡ RF connectivity, automotive, IoT
- ≡ Including 3D-SOC integration

### Advanced thin film technologies for RF passive devices

- ≡ Magnetic thin film development on 200mm/300mm wafers
- ≡ Advanced Cu electroplating technology on 200mm/300mm wafers
- ≡ Seed layer engineering (HiPIMS), conformal passivation (ALD)
- ≡ Micropatterning for RF passive devices

### Transversal thin film technology for WBG devices

- ≡ Nitride epitaxial thin film deposition on wafers for power devices and RF MEMS
- ≡ UWBG Al(X)N material development for high-mobility semiconductor applications
- ≡ Interface engineering for power devices and RF MEMS
- ≡ Advanced microfabrication technologies for power devices and RF MEMS
- ≡ Back-end thin film deposition for power devices and RF MEMS

### Pilot Line 04

Wide Band Gap materials



- ≡ SiC and AlGaIn/GaN technologies
- ≡ Advanced HEMT devices
- ≡ Power electronic and RF applications



# AT-C3: COMPETENCE CENTER AUSTRIA

NATIONAL CALL is Open Deadline 11 April 2024

Some of the Possible Supporters  
(t.b.d.via Letter of Support)

**Consortium**

**SILICONALPS (Lead)**

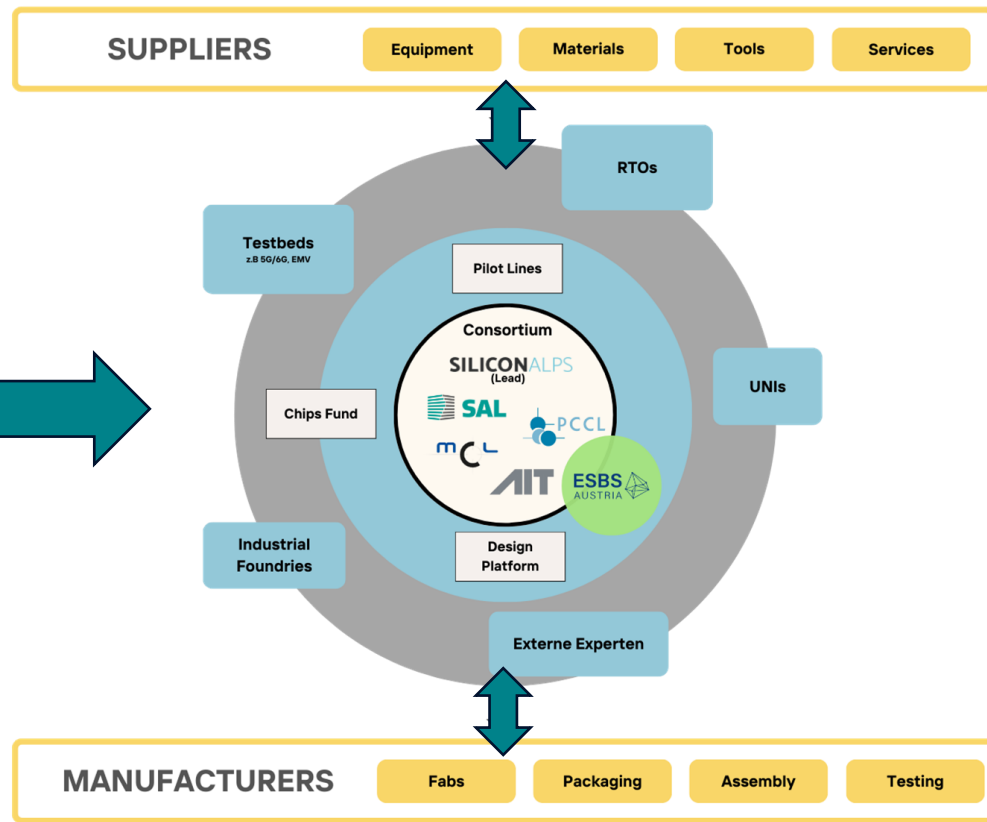
We Innovate Materials

Polymer Competence Center Leoben

**AIT** AUSTRIAN INSTITUTE OF TECHNOLOGY

**USER**

- SMEs
- System Houses
- IDMs
- RTOs





## Software-defined vehicle (SDV) platform and Non-initiative calls 2024



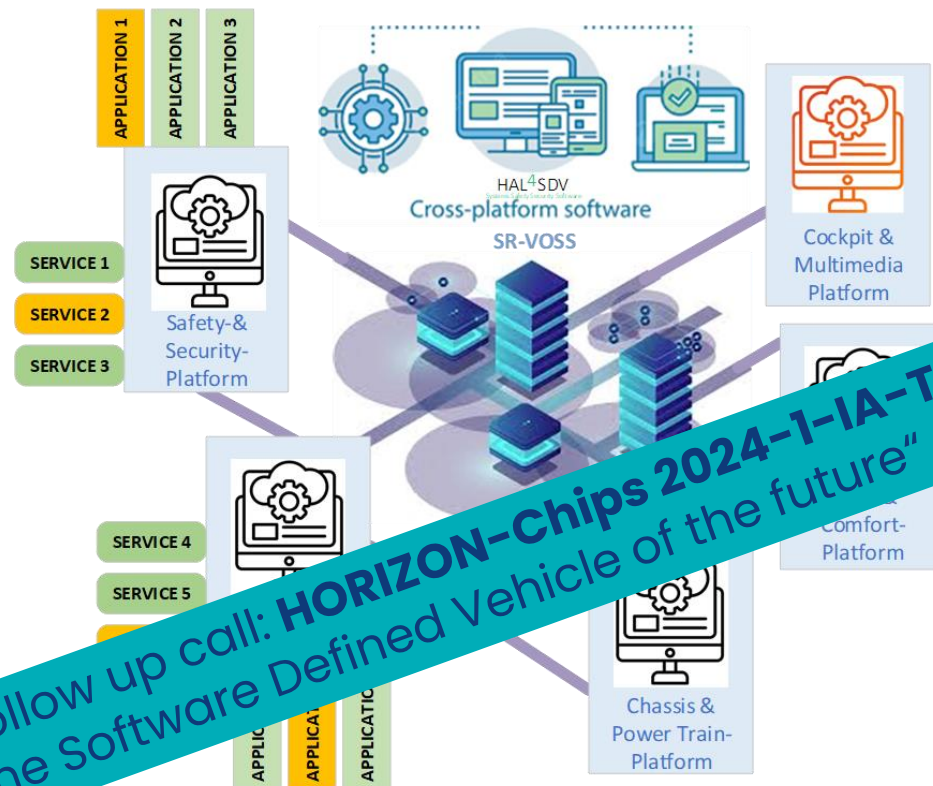
## Transform the mobility industry for a safer and more sustainable future: THE AUTONOMOUS

# Call 2023-2-RIA Topic 2 : Focus topic on Hardware abstraction layer for a European Vehicle Operating System: HAL4SDV project



**TTTech**

## Multi-Platform Approach



SR-VOSS: Safety-Relevant Vehicle Orchestration Service Suite

## HAL4SDV Expected Impact

Follow up call: **HORIZON-chips 2024-1-IA-T3** Focus topic on "Service Oriented Framework for the software Defined Vehicle of the future" – EC Funding: **20 Mn EUR**



## The Autonomous

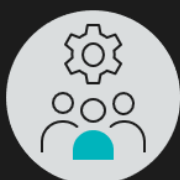
## THE | AUTONOMOUS



Initiated in 2019 by TTTech Auto. The Autonomous is a **community platform** shaping the future of : **The Autonomous Main Event**



Our **Mission** is to facilitate autonomous mobility



At The Autonomous M **experts** of the industry **autonomous vehicles** :

The annual  
flagship event of  
the initiative

September

23-24, 2024



The global  
autonomous  
mobility  
community in a  
historic building

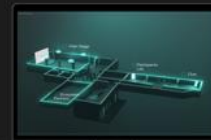
500+ Executives,  
Decision-Makers  
and Innovators



Incredible  
staging and  
show

Onsite meeting  
spaces

Live stream and  
virtual platform



## THE | AUTONOMOUS

Day 1

Workshops

Expert Circle

Working Group

Networking  
Sessions



Day 2

Panel  
Discussions

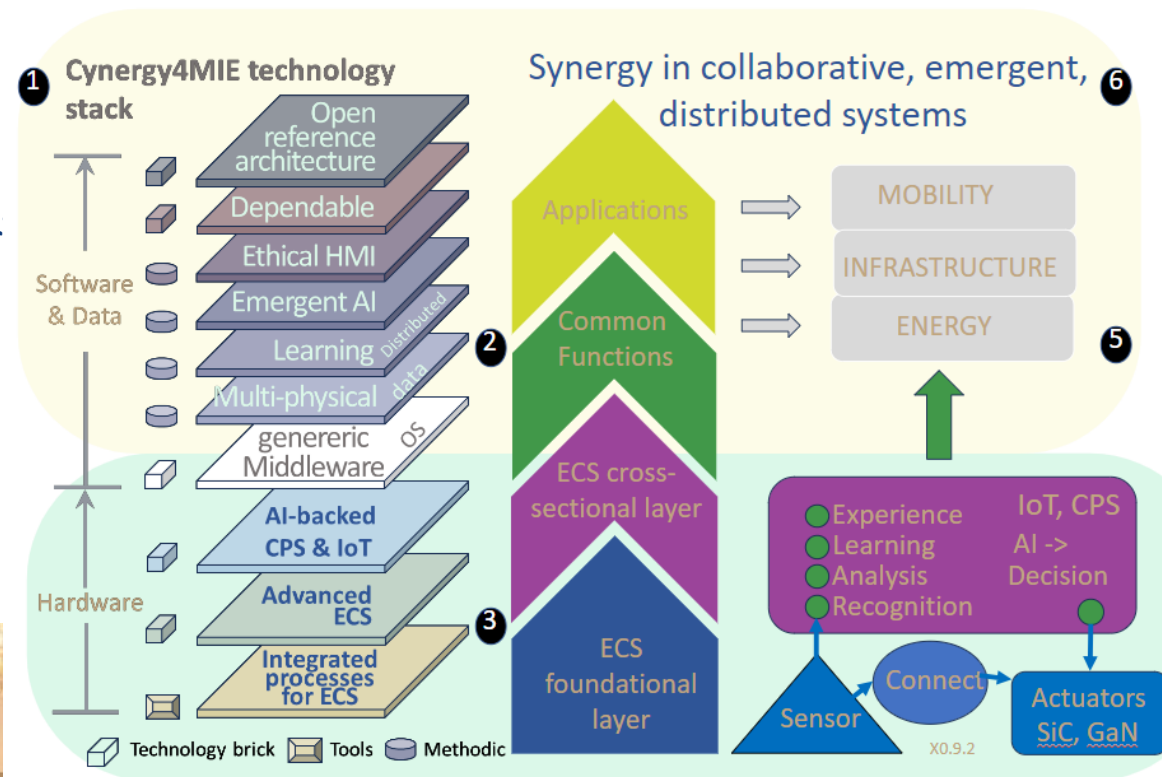
Keynotes

Networking  
sessions



(previous edition - 2023)

- **Focus on cooperation** for sustainable solutions in autonomous mobility
- **Taking stocks from the results of ongoing R&D projects** (i.e. A-IQ Ready and EcoMobility) and programmes (i.e. CCAM – SUNRISE project)
- **Insights on global market trends in autonomous mobility by European Commission**
- **Funding opportunities** in ongoing and future programmes such Chips-JU, CCAM, 2ZERO.



For more information visit: [www.the-autonomous.com](http://www.the-autonomous.com)

Previous edition: <https://www.tttech.com/road-autonomous-mobility-europe-places-focus-collaboration>

## **ESBS-Austria**

Mariahilfer Straße 37-39

1060 Vienna, Austria

Tel. +43 1 588 39-41

Mail: [office@esbs-austria.eu](mailto:office@esbs-austria.eu)

[www.esbs-austria.eu](http://www.esbs-austria.eu)

**THANK YOU!**